



Australian Government  
Department of Defence  
Defence Science and  
Technology Organisation

# Technology Challenges for the Australian Army

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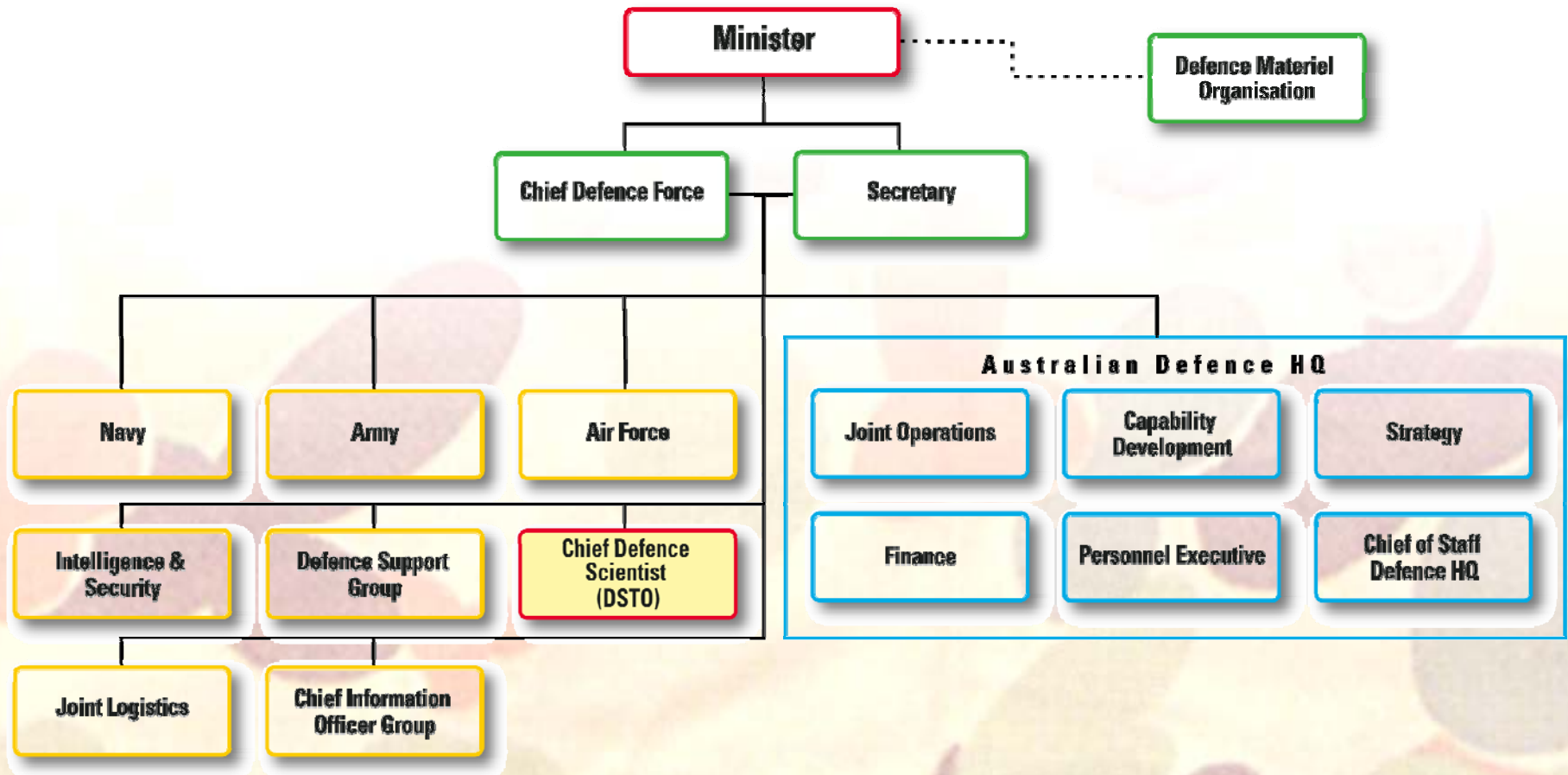








# Defence Structure





# DSTO at a Glance





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# DSTO Mission and Vision

## *Mission*

*DSTO is the Australian Government's lead agency charged with applying science and technology to protect and defend Australia and its national interests. It delivers expert, impartial advice and innovative solutions for Defence and other elements of national security.*

## *Vision*

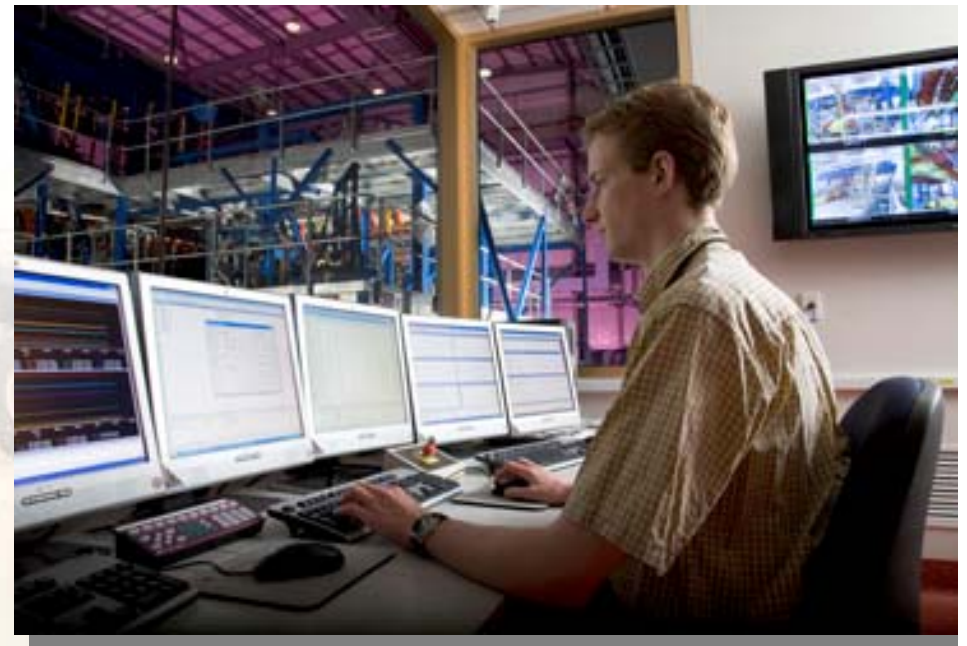
*To be a world leader in defence science and technology – indispensable in transforming the Australian Defence Force and Australia's national security.*





## DSTO's Role

- > Support to Policy.
- > Minimise technology surprises.
- > Smart buyer and user advice.
- > Niche developer.
- > Assist industry to assist Defence and National Security.
- > Strengthen technology base.







# Australian Army

- > Responsible for land and special operations.
- > 25,000 strong permanent force.
- > Budget: AU\$5.9 billion.
- > Busiest since Vietnam War.
- > Currently 2900 ADF personnel on deployments – Iraq, Afghanistan, East Timor, Solomon Islands, etc.
- > Two extra battalions by 2008.





# FORCE 2020

- > Seamless force integrated internally and externally with providers and community.
- > Continued multiple roles (peace-keeping, humanitarian, law enforcement, etc.).
- > Punching above its weight.





**Joint Operating Concept**



**Land Force Concepts**



**Technologies**





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# Hardened & Networked Army (HNA)

- > Combat weight and size.
- > Flexibility through networking.
- > Complex environments.







# Technology Drivers

- > War on terror.
- > Expeditionary operations.
- > Joint warfighting.
- > Reducing cost of operations.
- > Systems integration.
- > Force transformation.





# Challenges

- > Interoperability
- > Operational Tempo/Turnaround
- > Systems Thinking
- > Force Protection
- > Automation





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# Interoperability



Onboard jamming and  
towed decoy capability.



Deployed radar: US Army C4ISR  
On the Move Trial with DSTO.





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# Interoperability





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# Operations Support

Electronic Warfare Self Protection







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# Operations Support

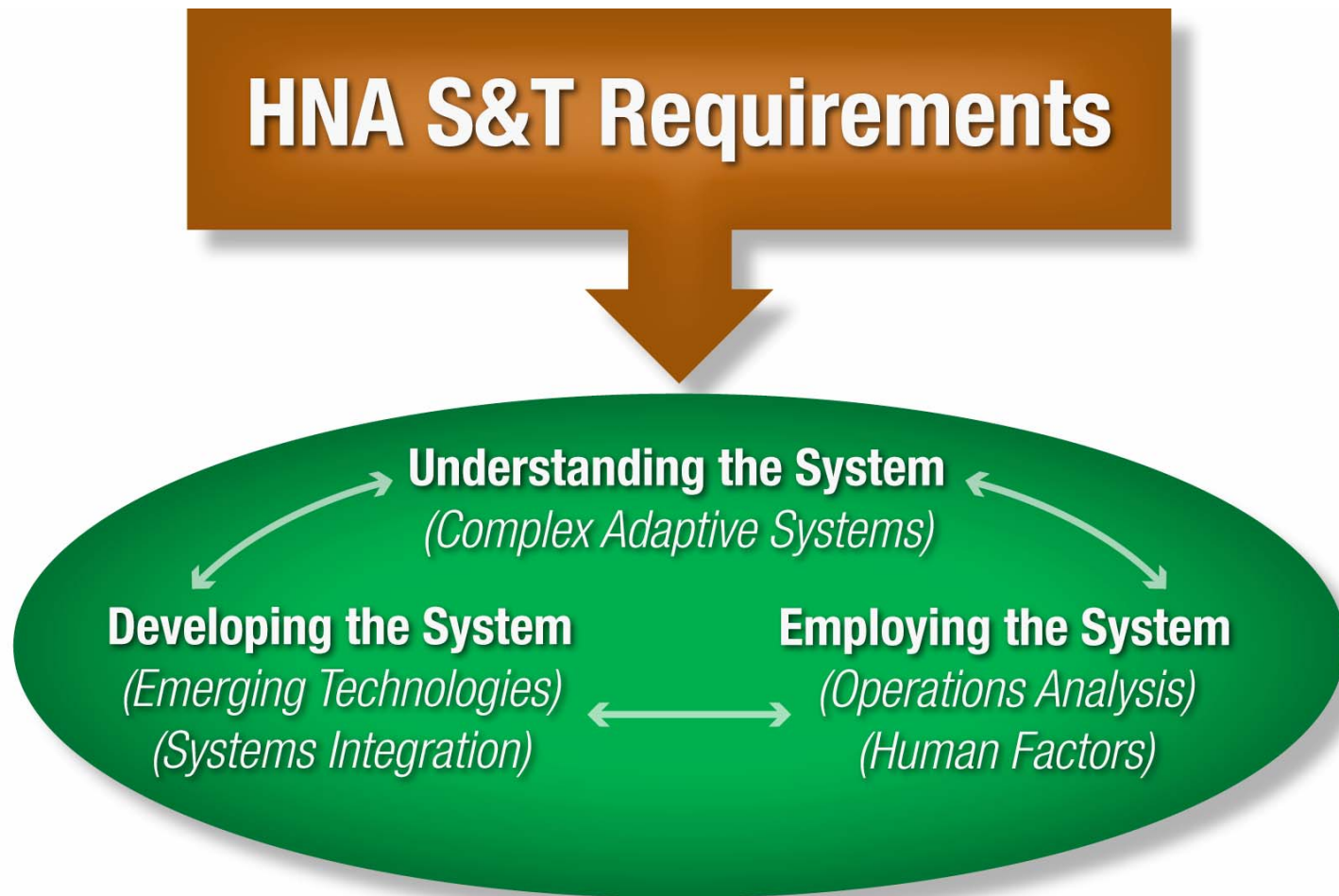
Desert uniform





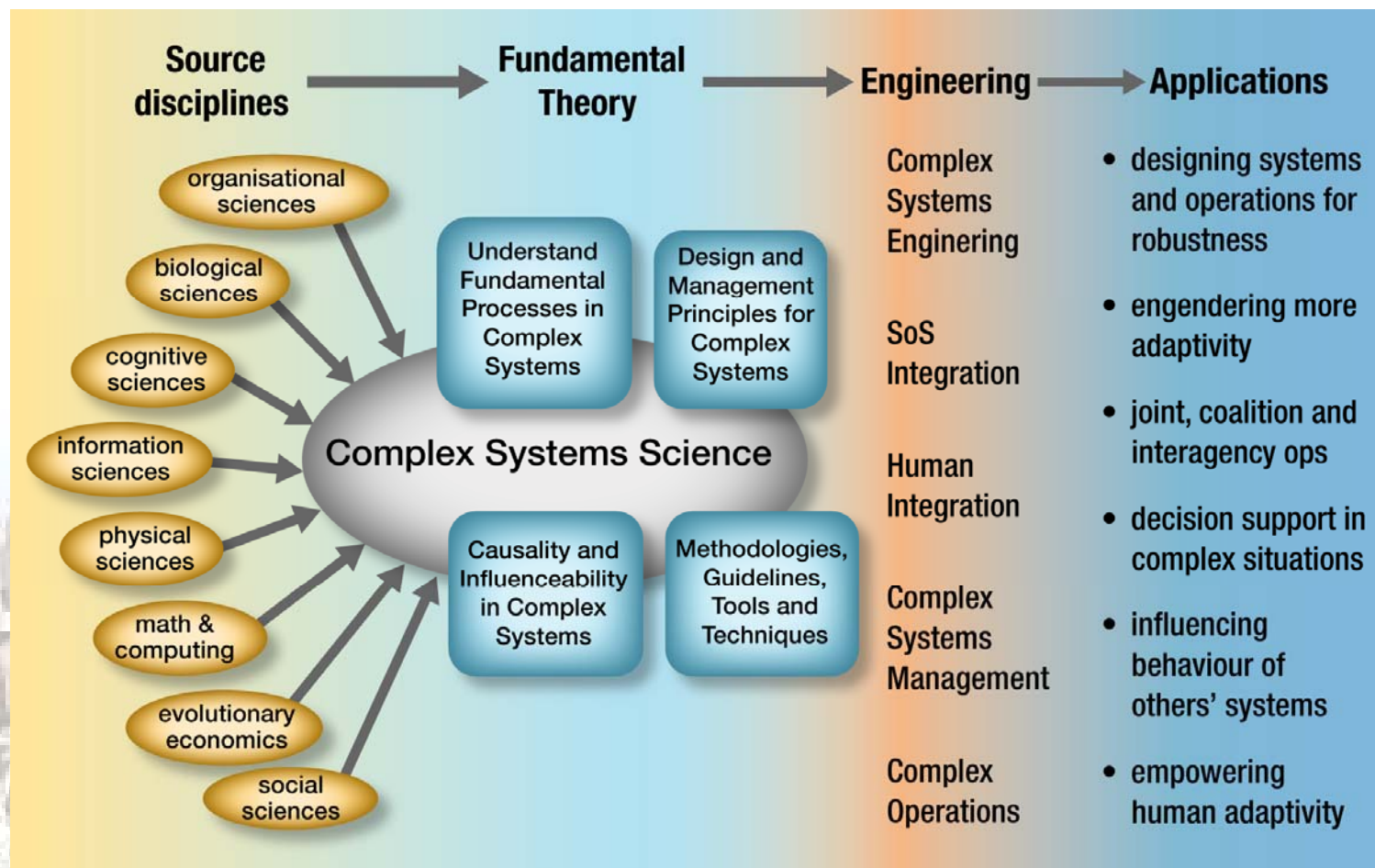
# Hardened and Networked Army – a Complex Adaptive System

## HNA S&T Requirements





# Complex Adaptive Systems – from science to applications







# Force Protection

- > IED countermeasures
- > Vehicle survivability enhancements
- > Reduce exposure of dismounted soldiers





# Counter IED Capability

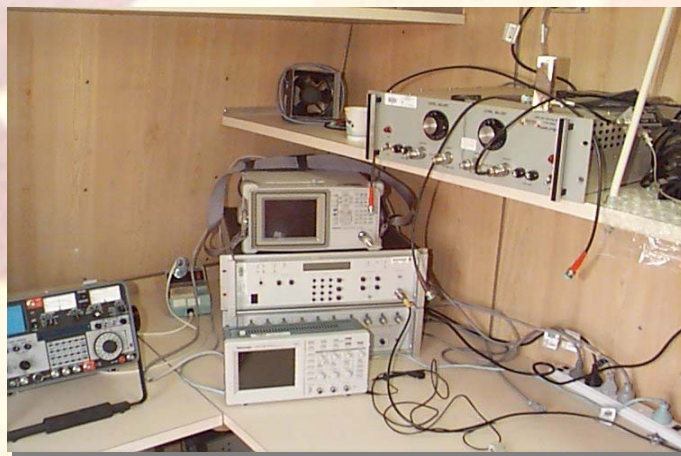






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# Counter IED Capability





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# Vehicle Survivability







# Thermal Signature Management

## Baseline ASLAV



Optical

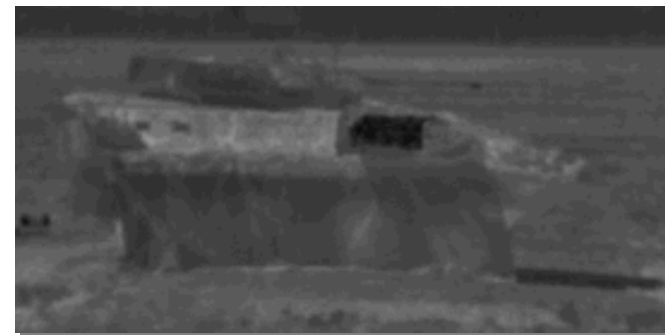


Long wave IR

## Mobile camouflage system



Optical



Long wave IR



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Off Axis Viewing Device



Camouflage



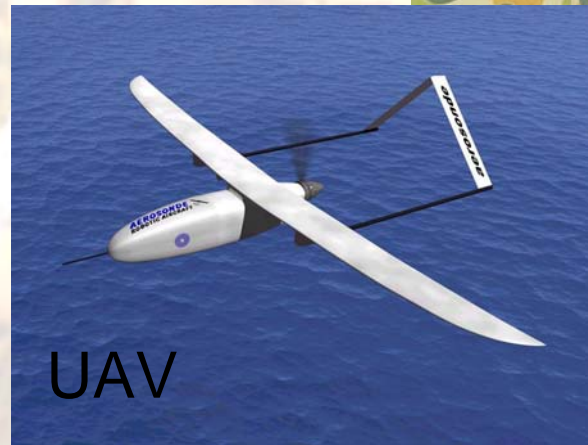


# Automation - Challenges

- > Human systems integration  
– who does what.
- > Information overload  
(many assets controlled  
by few people).
- > Technology trust and reliability.



UGV



UAV

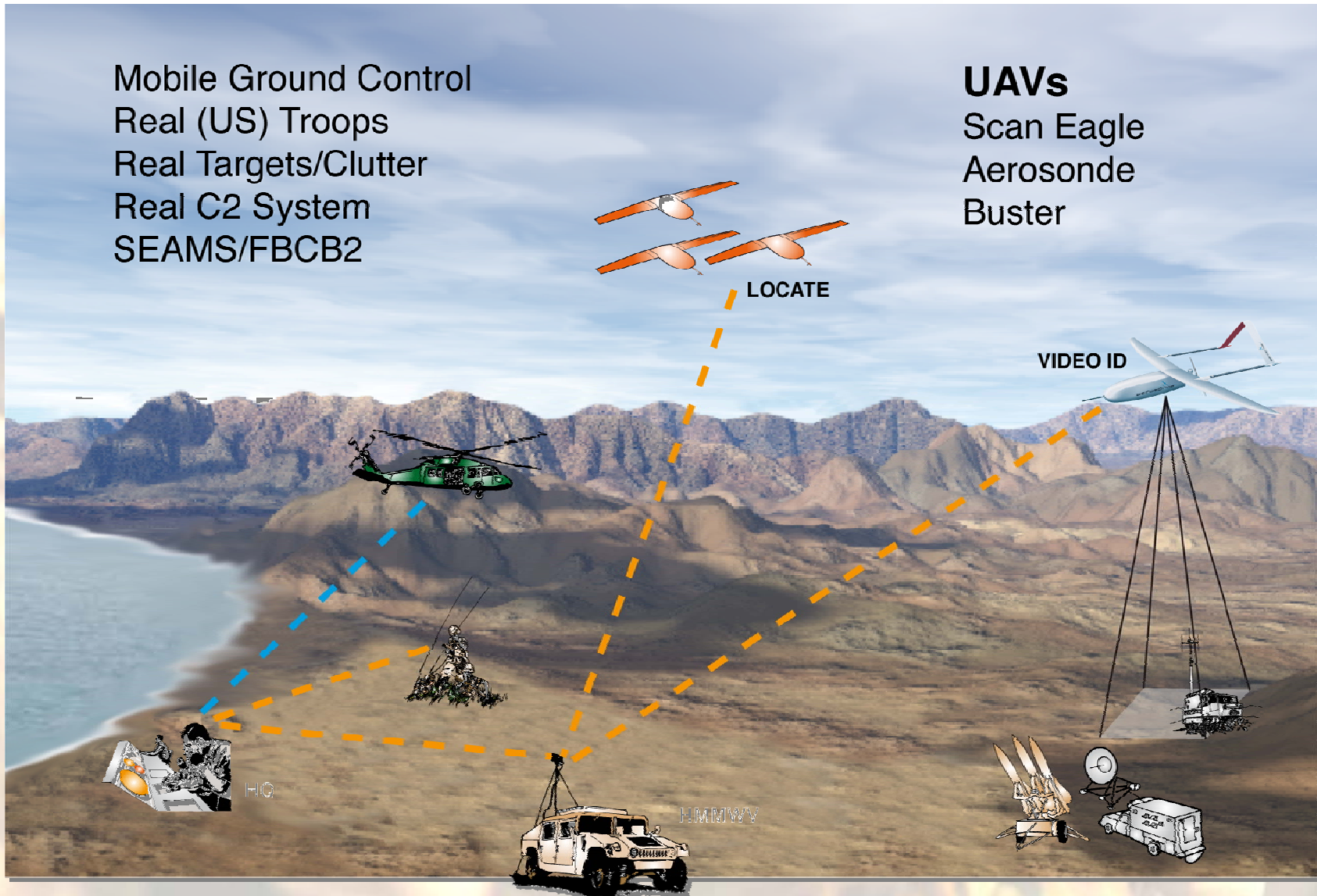


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# C4ISR On the Move

Mobile Ground Control  
Real (US) Troops  
Real Targets/Clutter  
Real C2 System  
SEAMS/FBCB2

**UAVs**  
Scan Eagle  
Aerosonde  
Buster







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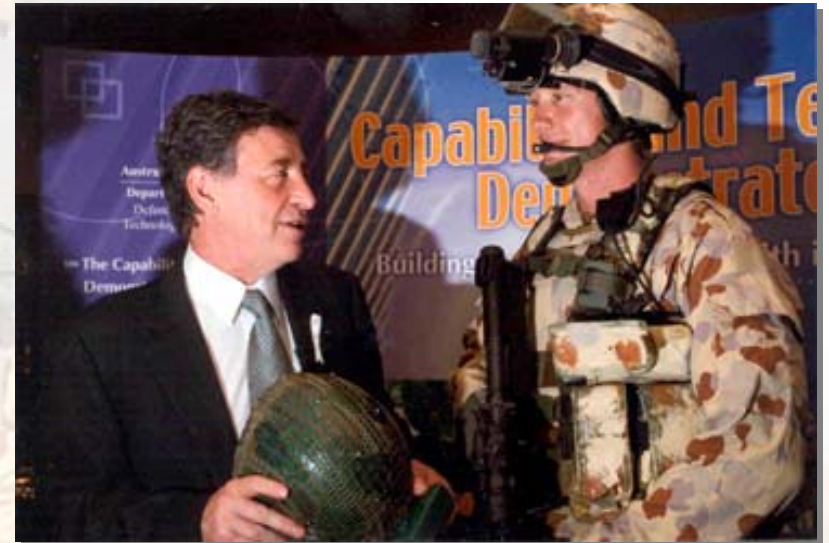
# C4ISR On the Move





# Capability & Technology Demonstrators

- > Annual budget \$26 M.
- > \$160 M invested since 1998.
- > Industry proposals increasing since last 2 years.







# Capability & Technology Demonstrators

- > Rapid landmine detection and neutralisation.
- > Advanced Individual Combat Weapon.
- > Haptically Operated Counter-explosives robot.
- > Personnel Location Device using GPS and smart card.
- > Wearable energy pack.
- > Light-weight ceramic, composites armour.





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# Capability & Technology Demonstrators





# Collaboration with US Army

## Current collaboration mechanisms:

- > The Technical Cooperation Program
- > Deutch-Ayers Agreement (PA-10 excellent example)
- > Missile Defence MOU
- > CBR MOU
- > Land Forces Modernisation Agreement
- > ABCA Army Standardisation Program
- > Data Exchange Agreements







## Summary

### Australian Army transforming

Network centric

Hardened but 'light'

**DSTO support**

Emerging threats

Systems design

Operations analysis







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# Thank You

